

AFT TUBE ONLY - SHIP AUG 25

Work Order ID 72320

Friday, July 22, 2011 10:37:09 AM



Page 1

Item ID: D3391-025

Accept



Setup

Start



Revision ID:

Item Name: Aft Tube Assembly

Stop



Start Date: 7/22/2011 Start Qty: 1.00



Cust Item ID:

Required Date: 8/25/2011 Req'd Qty: 1.00



Customer:

Reference:

Approvals: Process Plan:



Date:

Tooling:

Date:

Run

Start



QC:

Date:

SPC (Y/N):

Date:

Stop



Sequence ID/  
Work Center ID

Operation  
Description

Set Up/  
Run Hours

Tool ID

Tool #

Plan  
Code

Accept  
Qty

Reject  
Qty

Reject  
Number

Insp.  
Stamp

Draw Nbr

Revision Nbr

D3391

Rev H/ DEO

100

0.00



MORI SEIKI CNC LATHE LARGE

Mori Seiki

Memo

0.00

Mori Seiki CNC Lathe Large

Turn as per Folio FA599

Rev: \_\_\_\_ & Dwg D3391 Rev: \_\_\_\_

\*\*\*scribe batch # on fwd end at 90 degree\*\*\*

110

QC2- Inspect parts off machine FAI/FAIB

0.00

QC

Memo

0.00

Quality Control

111

QC8- Inspect parts- second check

0.00

QC

Memo

0.00

Quality Control



118/22

1/8  
man 1 11/08/15

1/8  
man 2 11/08/15

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

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Cust Item ID:

Required Date: 8/25/2011 Req'd Qty: 1.00



Customer:

Reference:

Approvals: Process Plan:

Date:

Tooling:

Date:

Run Start



QC:

Date:

SPC (Y/N):

Date:

Stop

Sequence ID/  
Work Center ID

120

Operation  
DescriptionSet Up/  
Run Hours

Tool ID

Tool #

Plan  
CodeAccept  
QtyReject  
QtyReject  
NumberInsp.  
Stamp

HAAS I

HAAS CNC VERTICAL MACHINING #1

0.00

HAAS CNC vertical machine #1

Memo

0.00

1-Machine as per Folio FA 599 Rev: A4 & Dwg D3391 Rev: H

2-Deburr

SK 11-08-22

130



QC2- Inspect parts off machine FAI/FAIB

0.00

QC

Quality Control

Memo

0.00

SK 11-08-22

140



QC8- Inspect parts - second check

0.00

Memo

0.00

SK 11-08-22

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_  
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Approvals: Process Plan:

Date:

Tooling:

Date:

Run Start



QC:

Date:

SPC (Y/N):

Date:

Stop

Sequence ID/  
Work Center ID

150

Operation  
Description

Skidtubes

Set Up/  
Run Hours

0.00

Tool ID

Tool #

Plan  
CodeAccept  
QtyReject  
QtyReject  
NumberInsp.  
Stamp

Skidtubes



Memo

0.00

I-Drill ( PILOT HOLE) aft cap holes per Dwg D3391 using DT8803

DP 11-8-22

160



BENDING MACHINE - SKIDTUBES

0.00

CNC Bend I

CNC Delta 100 Bender

Memo

0.00

Form as per Dwg D3391 Using Bend Prog 3391025

DP 11-8-22

170



QC5- Inspect part completeness to step on W/O

0.00

QC

Quality Control

Memo

0.00

3.96

1 0 321/08/22

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

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Work Center ID**

180

**Operation  
Description**

Skidtubes

Skidtubes

Skidtubes

**Set Up/  
Run Hours**

0.00

**Tool ID****Tool #****Plan  
Code****Accept  
Qty****Reject  
Qty****Reject  
Number****Insp.  
Stamp**

**Memo** 0.00

1-Open Aft cap pilot hole to .208" as per Dwg D3391

2-Drill float bag holes using DT8809 as per Dwg D3391(Holes marked "A" Only)

3-Drill wearplate holes as per Dwg D3391 using DT8878(Mid Tube) & DT8217 Wearplate Jig

\*\*\*\*Do Not Open To Finished Size\*\*\*\*

4-Drill Wearshoe holes as per DWG D3391 using DT8939 locating from 2 previously drilled aft wearplate holes.

5-Open wearplate holes to 0.250" and c'bore as per dwg D3391

6-Open up all wearshoe wearplate to 0.297"and float bag holes to 0.328" as per Dwg D3391.

7-Deburr

BE 10/08/23

11-8-22

W/O:

## WORK ORDER CHANGES

DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

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Work Center ID**

190



QC

Quality Control

**Operation  
Description**

QC5- Inspect part completeness to step on W/O

**Set Up/  
Run Hours**

0.00

0.00

**Tool ID****Tool #****Plan  
Code****Accept  
Qty****Reject  
Qty****Reject  
Number****Insp.  
Stamp**

200



HandFinish

Hand Finishing

Chemical Conversion Coat per QSI005 4.1

0.00

0.00

210



QC

Quality Control

QC3- Inspect Part Finish

0.00

0.00

Suloez/23

(fc)

JL  
1108/23

DP

11-8-23

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

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Customer:

Reference:

Approvals: Process Plan:

Date:

Tooling:

Date:

Run Start



QC:

Date:

SPC (Y/N):

Date:

Stop

Sequence ID/  
Work Center ID

220

Operation  
DescriptionSet Up/  
Run Hours

Tool ID

Tool #

Plan  
CodeAccept  
QtyReject  
QtyReject  
NumberInsp.  
Stamp

Skidtubes

Skidtubes

Skidtubes

Memo

0.00

Instal spacers as per dwg D3391  
A/R Magnabond 6398, Batch: M116677  
exp. date: 12/01/15  
cure time 12hrs as per QSI0015

230



QC5- Inspect part completeness to step on W/O

0.00

S. idos/24

QC

Quality Control

Memo

0.00

235



Pressure Wash per QSI005 4.3

0.00

HandFinish

Hand Finishing

Memo

0.00

AND REALODINE AS PER PAR09-043

Dh  
11/08/23

1X/2 m-f 11/08/24

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

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Customer:

Reference:

Approvals: Process Plan:

Date:

Tooling:

Date:

Run

Start



QC:

Date:

SPC (Y/N):

Date:

Stop

Sequence ID/  
Work Center ID

240



Powdercoat

Powder Coating

W 117145

Operation  
Description

White Gloss(Ref:4.3.5.1) per QSI005 4.3-Alum

Set Up/  
Run Hours

Tool ID

Tool #

Plan  
CodeAccept  
QtyReject  
QtyReject  
NumberInsp.  
Stamp

0.00

3:15 0.00  
320 0F  
3:45

X 8 m-fn/08/24

250



QC

Quality Control

QC3- Inspect Part Finish

0.00

1 BL 11-8-25.

Memo

0.00

260



HandFinish

HandFinishing

0.00

Memo

0.00

Hand Finishing

1-Install inserts as per Dwg D3391

2-Install Aft Cap as per Dwg D3391

A/R Sikaflex-241/291 1K393Sikaflex expiry date: 12-5

1 BL 11-8-25.

W/O:		WORK ORDER CHANGES					
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Cust Item ID:

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Customer:

Reference:

Approvals: Process Plan:

Date:

Tooling:

Date:

Run Start



QC:

Date:

SPC (Y/N):

Date:

Stop

Sequence ID/  
Work Center ID

270



QC

Quality Control

Operation  
Description

QC5- Inspect part completeness to step on W/O

Memo

Set Up/  
Run Hours

0.00

8 u/o 8/25

Tool ID

Tool #

Plan  
CodeAccept  
QtyReject  
QtyReject  
NumberInsp.  
Stamp

0.00

280



Packaging

Packaging

Identify as per dwg &amp; Stock Location: \_\_\_\_\_

0.00

Memo

0.00

11/18/25

290



QC

Quality Control

QC21- Final Inspection - Work Order Release

0.00

Memo

0.00

11/18/25 JJ

11/10/25

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

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# Picklist Print

Friday, July 22, 2011 10:37:06 AM

Page 1

Work Order ID: 72320



Parent Item: D3391-025



Parent Item Name: Aft Tube Assembly

Start Date: 7/22/2011

Required Date: 8/25/2011

Start Qty: 1.00

Required Qty: 1.00

Comments:

IPP Rev B 06-02-07 ECN773 dwg rev. D EC  
IPP Rev:C 06-03-28 Update Manuf. Instructions JLM  
IPP rev D 07.03.20 revF dwg EC  
IPP rev E 07.11.07 rev G dwg een 1053p EC verified by: DD  
IPP Rev:F 07-11-13 ECN 1056 DD verified by: EC  
IPP Rev:G 08-09-10 revH as per dwg DD verified by:EC

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
D6014-090 		Manufactured	No			100	Each	1.0000	1	1			

ALUMINUM EXTRUSION

B66179

D3670-4-200

SPACER

	Location	Loc Qty	Loc Code
	LG	1	
	56572	1	

Manufactured

SPACER

No

230 Each 60.0000 4 4

Location	Loc Qty	Loc Code
LG	60	
70822	18	
71850	42	

72851

(4)

DL  
11/08/23

MM 11/08/15

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

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Work Order ID: 72320



Parent Item: D3391-025



Parent Item Name: Aft Tube Assembly

Start Date: 7/22/2011

Required Date: 8/25/2011

Start Qty: 1.00

Required Qty: 1.00

D2646



Manufactured No

270

Each

111.0000



Aft Cap

BR 11-8-25

<u>Location</u>	<u>Loc Qty</u>	<u>Loc Code</u>
-----------------	----------------	-----------------

FP004	58	
-------	----	--

68280	58	
-------	----	--

FP006	5	
-------	---	--

62678	5	
-------	---	--

FP-4	39	
------	----	--

70945	1	
-------	---	--

71070	38	
-------	----	--

fp5	9	
-----	---	--

71038	9	
-------	---	--

D3537-1



Manufactured No

270

Each

7.0000



Wearpad

BR 11-8-25

<u>Location</u>	<u>Loc Qty</u>	<u>Loc Code</u>
-----------------	----------------	-----------------

FP017	7	
-------	---	--

70687	7	
-------	---	--

69817	5	
-------	---	--

70686	2	
-------	---	--

D3537-7



Manufactured No

270

Each

2.0000



Wearpad

<u>Location</u>	<u>Loc Qty</u>	<u>Loc Code</u>
-----------------	----------------	-----------------

FP019	2	
-------	---	--

71689	2	
-------	---	--

69320	2	
-------	---	--

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

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Parent Item Name: Aft Tube Assembly

Start Date: 7/22/2011

Required Date: 8/25/2011

Start Qty: 1.00

Required Qty: 1.00

D3553-1



Manufactured

No

270

Each

4.0000

1

1



Gasket

<u>Location</u>	<u>Loc Qty</u>	<u>Loc Code</u>
-----------------	----------------	-----------------

FP013

4

56568 ✓

4

1

D3553-3



Manufactured

No

270

Each

28.0000

1

1



Gasket

<u>Location</u>	<u>Loc Qty</u>	<u>Loc Code</u>
-----------------	----------------	-----------------

FP

20

31631

20

FP013

8

53480 ✓

8

1

D3672-1



Manufactured

No

270

Each

920.0000

2

2



Phenolic Washer

<u>Location</u>	<u>Loc Qty</u>	<u>Loc Code</u>
-----------------	----------------	-----------------

ST074

918

64177 ✓

418

66821

500

ST077

2

52505

2

2



BL 11-8-25

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_  
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Parent Item Name: Aft Tube Assembly

Start Date: 7/22/2011

Required Date: 8/25/2011

ALS4-1032-130

Purchased

No

260

Each

3,132.000

14

14



Insert

<u>Location</u>	<u>Loc Qty</u>	<u>Loc Code</u>
ST281	1008	
117331	8	
118386	1000	
ST282	2124	
117717	124	
118237	1744	
118312	256	

*BL 11-8-25*

*BL 11-8-25.*

ALS4-1032-225

Purchased

No

270

Each

973.0000

12

12



Insert

*ALS4-1032-225 111581*

<u>Location</u>	<u>Loc Qty</u>	<u>Loc Code</u>
ST282	973	
110768	104	
117717	9	
118386	860	

*BL 11-8-25.*

AN3C4A

Purchased

No

270

Each

1,396.000

6

6



BOLT

<u>Location</u>	<u>Loc Qty</u>	<u>Loc Code</u>
ST350	1396	
117313	2	
117688	332	
117795	500	
117872	22	
118012	500	
118112	40	

*BL 11-8-25.*

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

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Parent Item: D3391-025



Parent Item Name: Aft Tube Assembly

Start Date: 7/22/2011

Required Date: 8/25/2011

AN3C5A



Purchased

No

270

Each

1.039.000

4

4



Bolt

BL 11-8-25

<u>Location</u>	<u>Loc Qty</u>	<u>Loc Code</u>
-----------------	----------------	-----------------

FP-A	7	
115835	7	
ST350	1032	
116419	28	
116549	42	
117343 ✓	500	4.
117764	300	
117872	162	

AN960C10L



NAS1149C0332 ✓ Purchased

R

No

270

Each

0.0000

10

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118306.

BL - 11-8-25

washer

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

DART AEROSPACE LTD		Work Order:	77870
Description: Float Skidtube (412)		Part Number:	D3391-3
Inspection Dwg: D3391	Rev: H		Page 1 of 1

### FIRST ARTICLE INSPECTION CHECKLIST

Drawing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
<b>Lathe Section</b>						
14.000	+/-0.010	14	✓		tape	mm.L-02
3.500	+/-0.010	3.50	✓		vern	JF-01
88.93	+/-0.030	88.935	✓		tape	mm.L-02
Ø3.200	+/-0.010	3.200	✓		mic	CNC-05
88.93	+/-0.030	88.935	✓		tape	mm.L-02
Ø3.750	+/-0.010	3.750	✓		mic	CNC-05
30° x 160° chamfer	+/-0.010	30° x 160	✓		vern	JF-01

Measured by: *DKR*

Date: 11/08/18

Audited by: *JK*

Date: 11/18/18

HAAS Section						
1.526	+0.000/-0.030	1.515	✓		vern	JL-3
7.500	+/-0.010	7.499	✓		vern	CNC-02
27.750	+/-0.010	27.750	✓		mic	
31.750	+/-0.010	31.750	✓			
35.250	+/-0.010	35.250	✓			
3.300	+/-0.010	3.304	✓		vern	CNC-02
0.200	+/-0.010	0.205	✓		vern	JL-3
3.520	+/-0.010	3.527	✓		mic	JQ-04
0.687	+0.010/-0.000	0.690				
R0.062	+/-0.010	-0.062	✓			
Ø0.484	+0.005/-0.001					

Measured by: *JK*

Date: 11/08/18

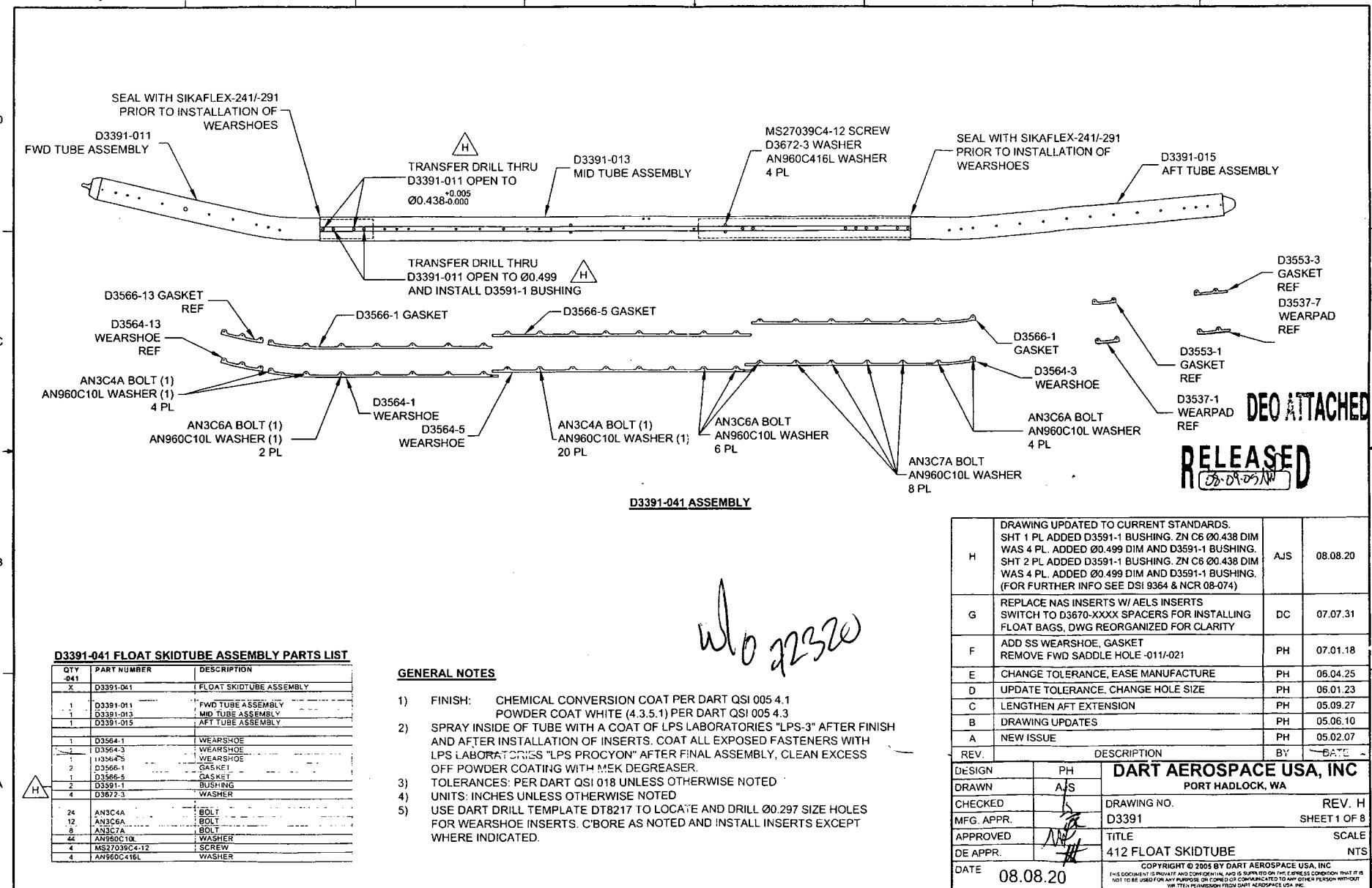
Audited by: *JK*

Date: 11/18/18

Rev	Date	Change	Revised by	Approved
A	06.04.24	New Issue P/O D3391-015/-025	KJ/JLM	
B	06.06.19	Dwg revision update	KJ/JLM	
C	07.04.20	Ø0.208 dimension removed	KJ/JLM	
D	07.09.06	0.400 dimension removed	KJ/JLM	
E	07.11.23	Dwg Rev. updated	KJ/EC/DD	
F	09.04.27	Dimensions updated per Rev H and NCR09-028	KJ/JLM	
G	09.11.16	Dimension 0.200 removed	KJ	
H	11.06.21	Dimension 44.995 removed	KJ	<i>JK</i>

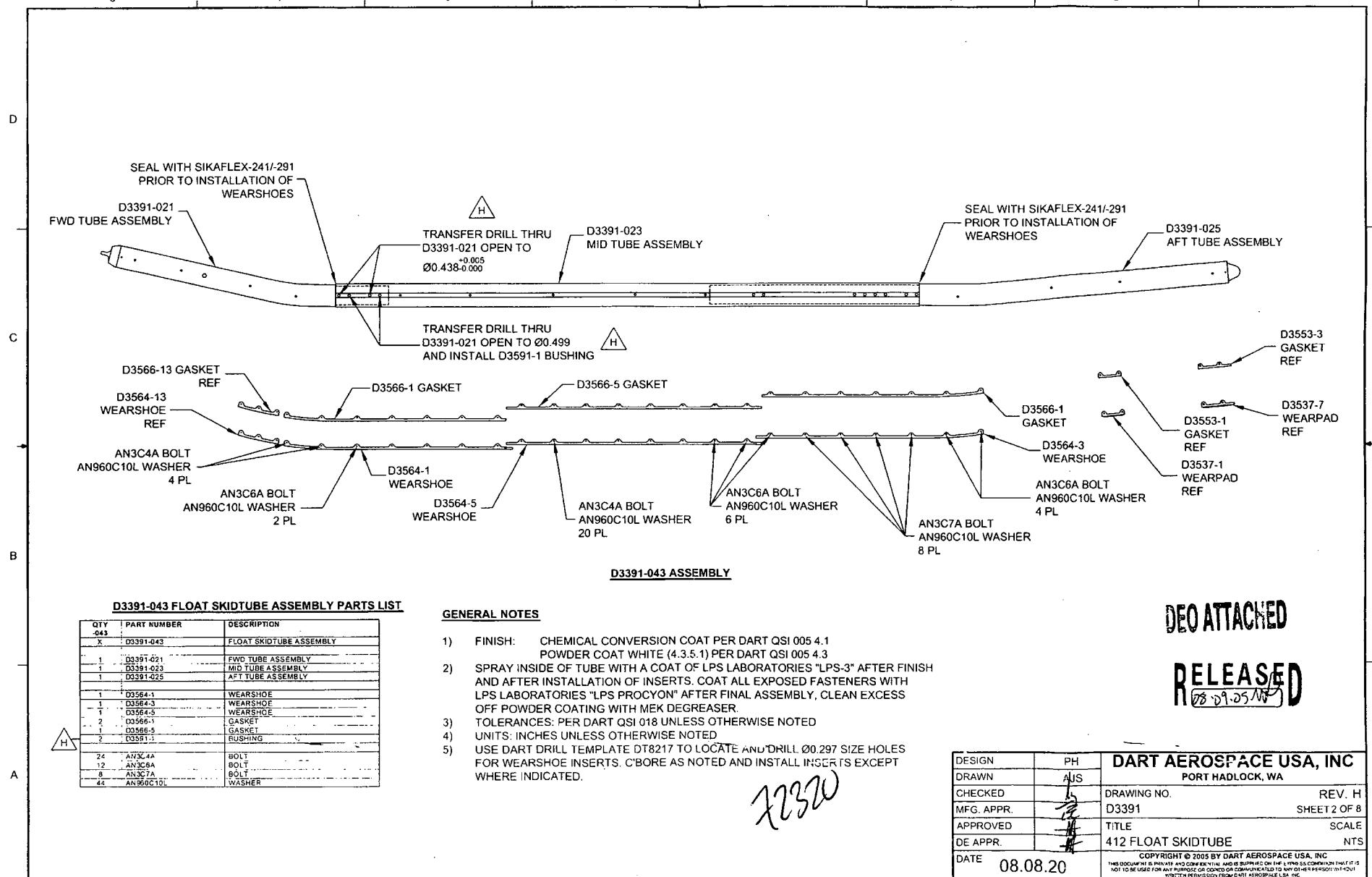


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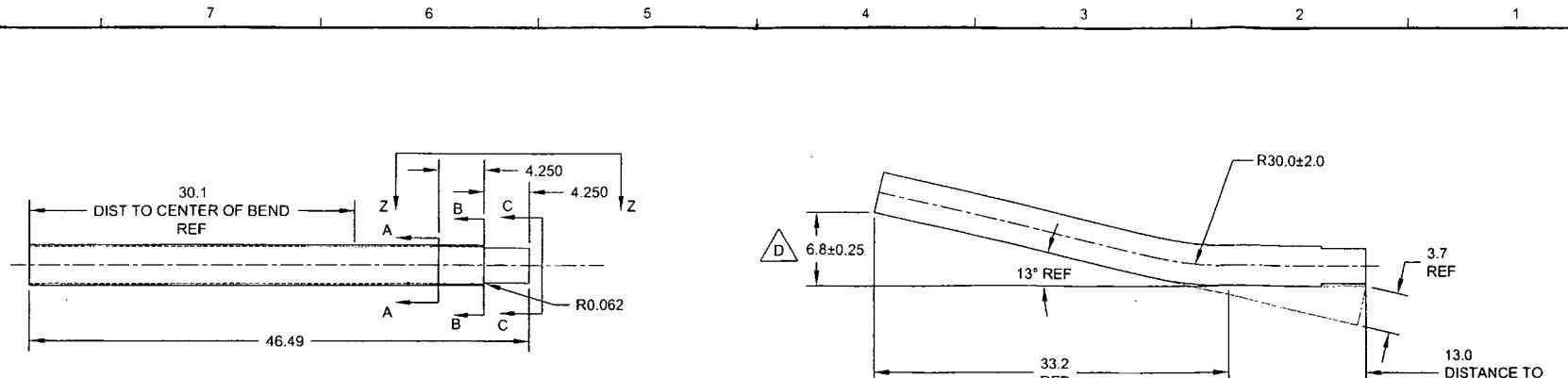


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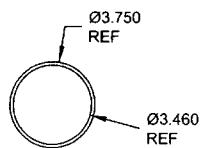


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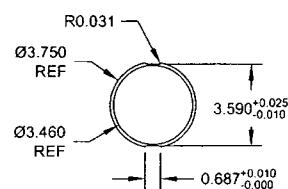


**D3391-1 CUTTING DETAIL**  
(MAKE FROM D6013-047 SKIDTUBE MATERIAL)

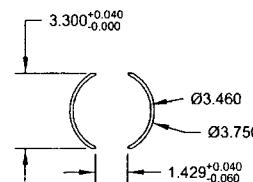
**D3391-011/-021 BENDING DETAIL**  
(MAKE FROM D3391-1)



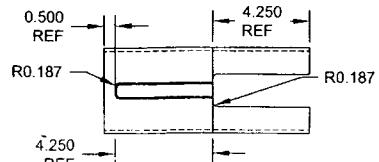
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**SECTION B-B**  
SCALE 2X



**SECTION C-C**  
SCALE 2X



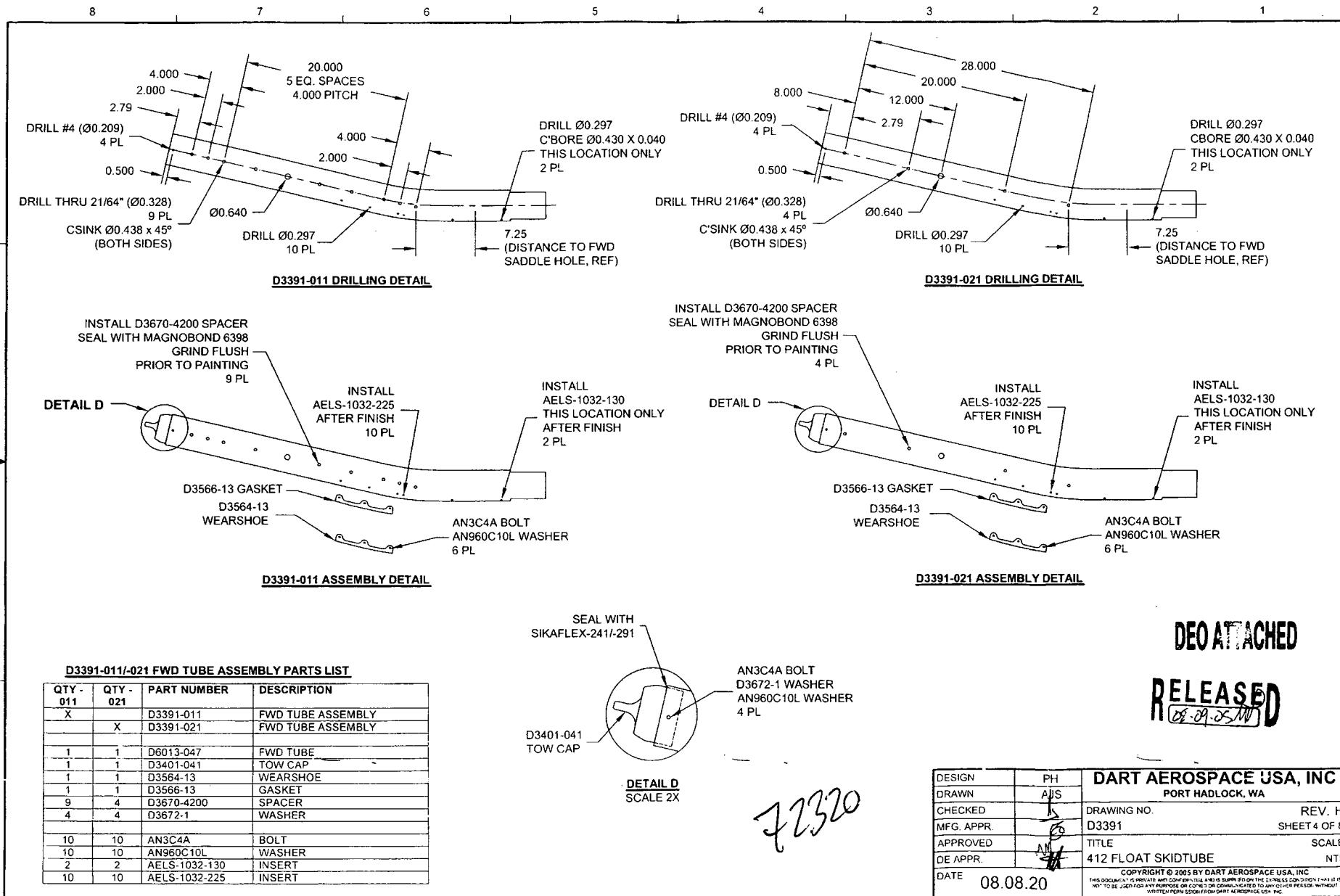
**VIEW Z-Z**  
SCALE 2X

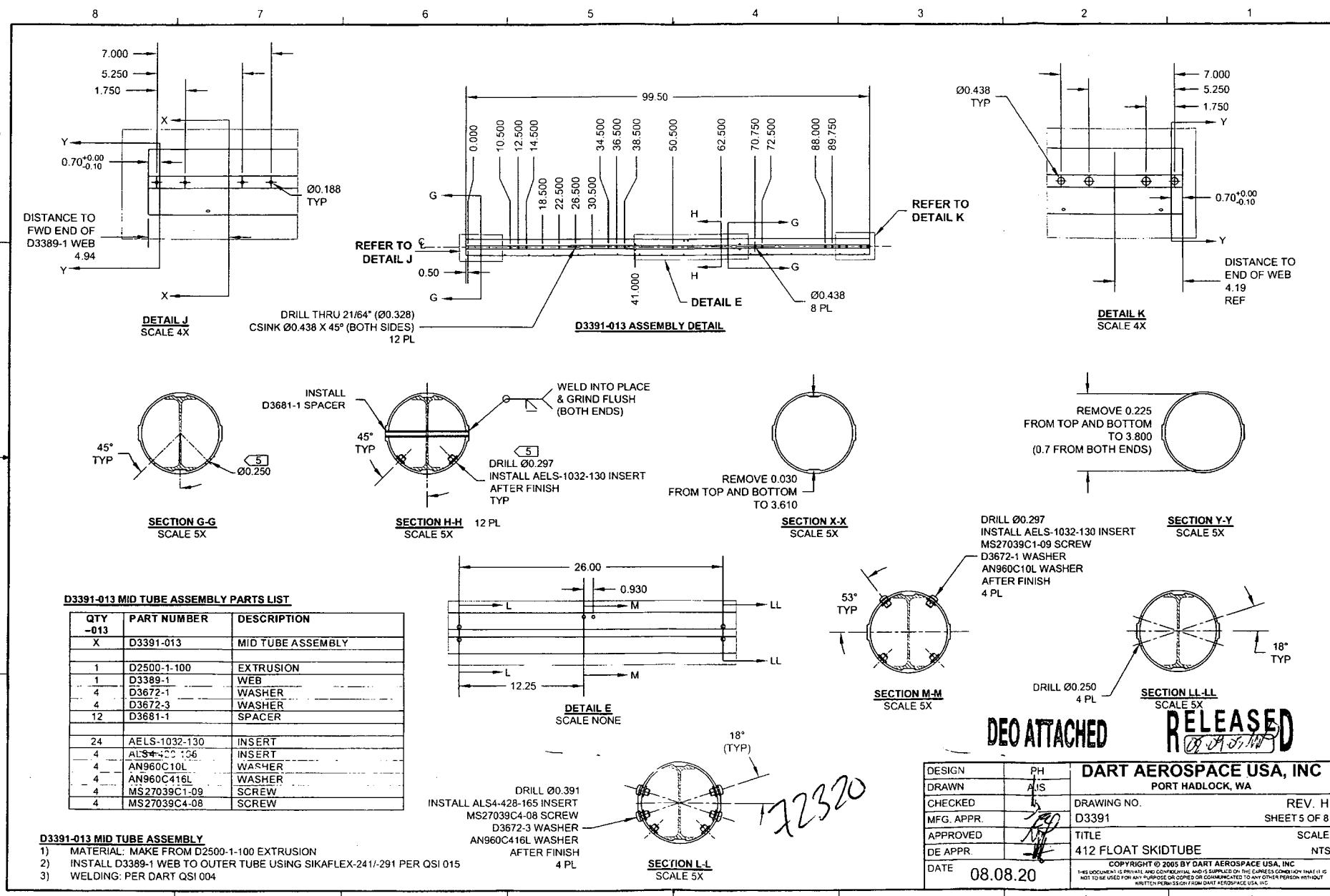
DET ATTACHED  
RELEASED  
*08-05-05*

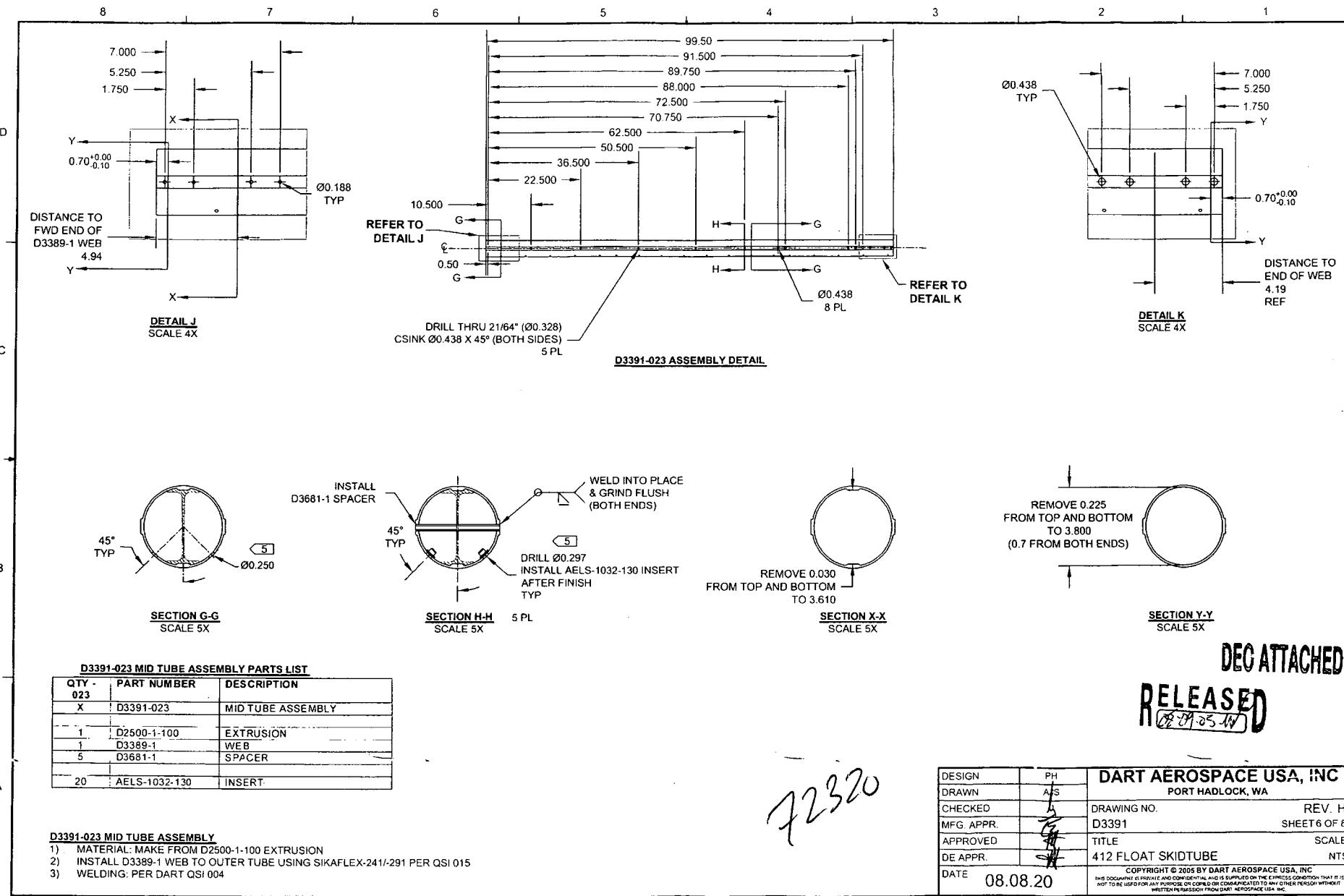
*12320*

DESIGN	PH	DART AEROSPACE USA, INC
DRAWN	AUS	PORT HADLOCK, WA
CHECKED		DRAWING NO.
		REV. H
MFG. APPR.		D3391
APPROVED		SHEET 3 OF 8
DE APPR.		TITLE
		412 FLOAT SKIDTUBE
DATE	08.08.20	SCALE
		NTS

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DEC ATTACHED

RELEASED  
2024/05/10

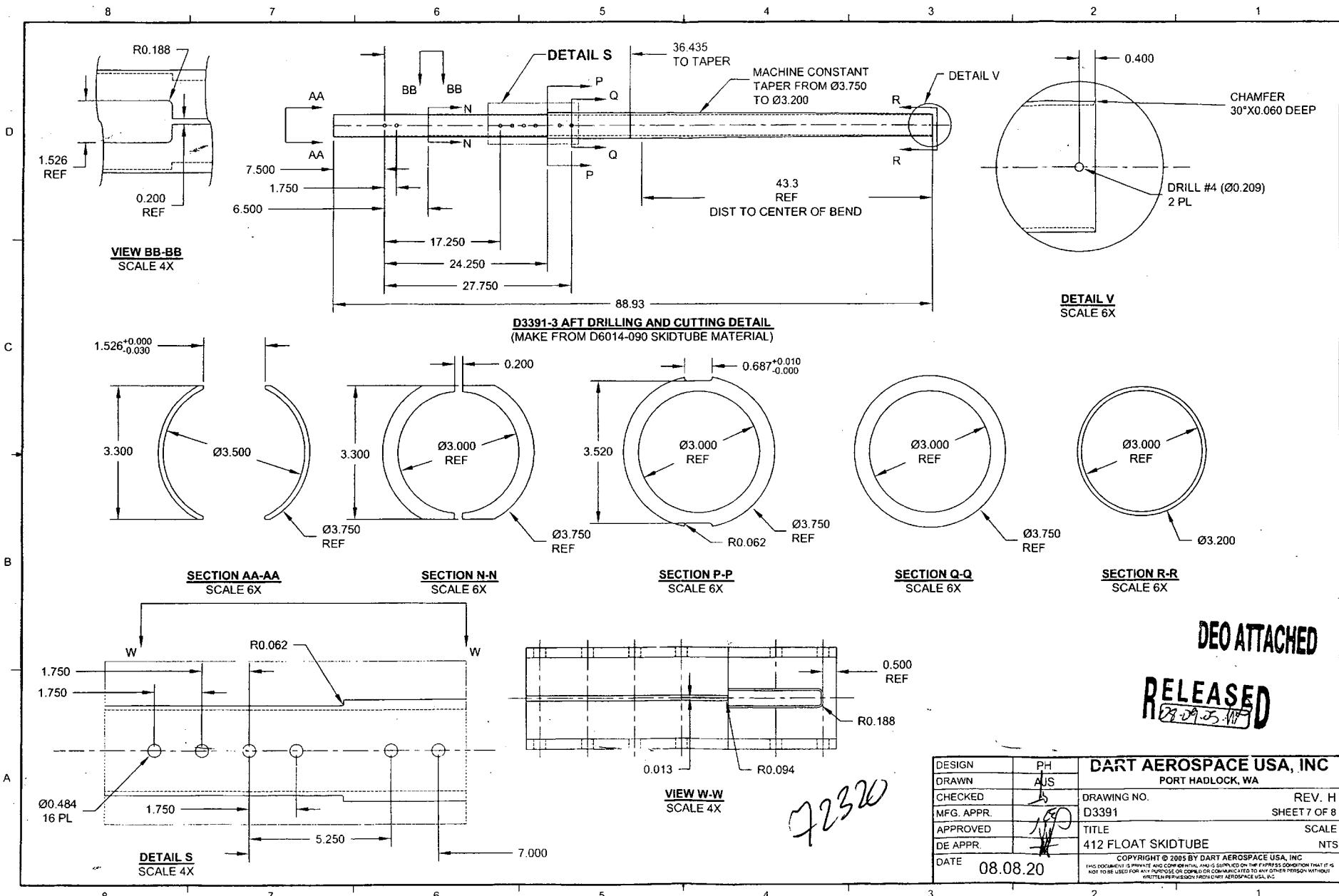
D3391-023 MID TUBE ASSEMBLY PARTS LIST

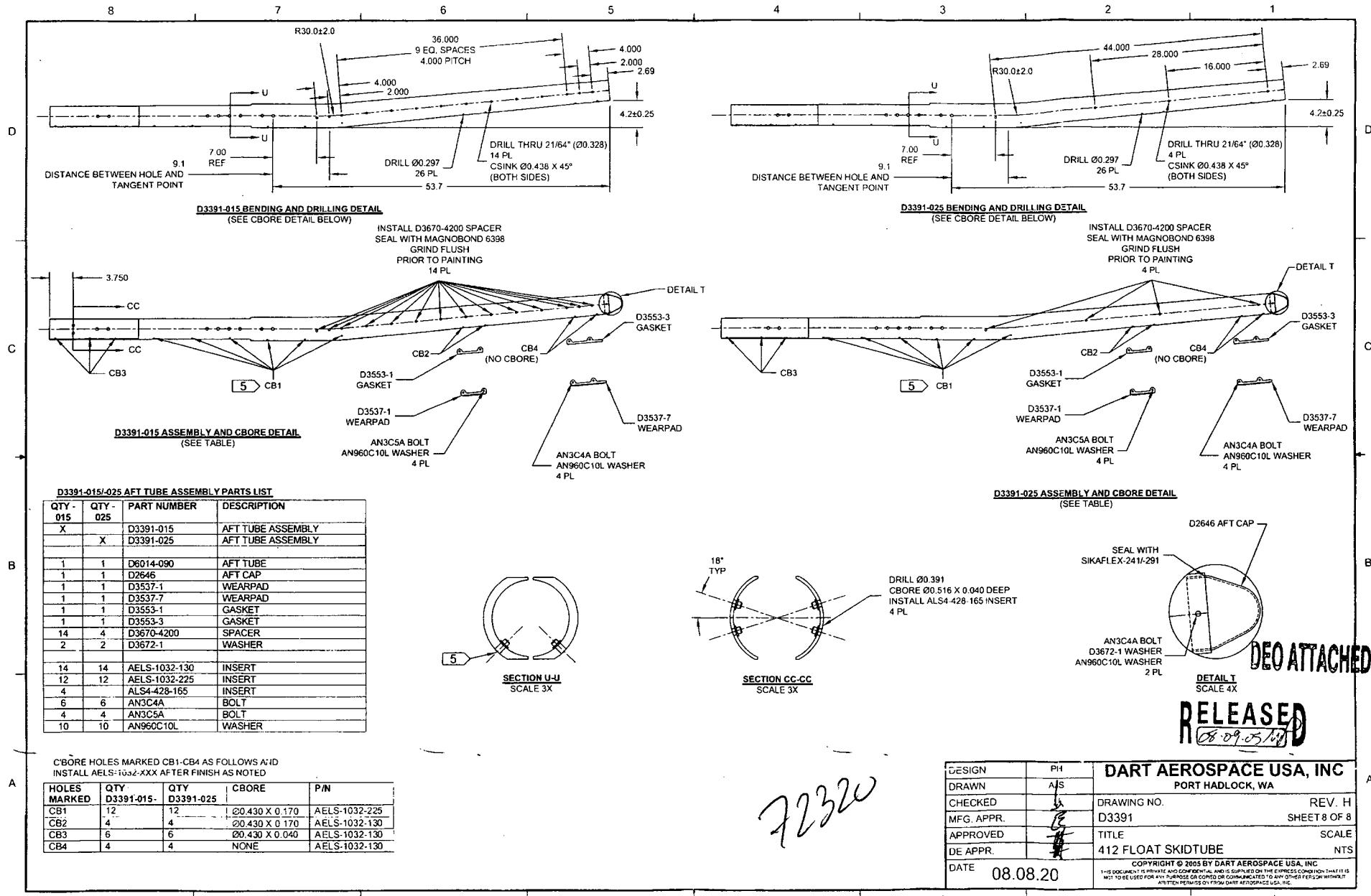
QTY - 023	PART NUMBER	DESCRIPTION
X	D3391-023	MID TUBE ASSEMBLY
1	D2500-1-100	EXTRUSION
1	D3389-1	WEB
5	D3681-1	SPACER
20	AELS-1032-130	INSERT

D3391-023 MID TUBE ASSEMBLY

- 1) MATERIAL: MAKE FROM D2500-1-100 EXTRUSION
- 2) INSTALL D3389-1 WEB TO OUTER TUBE USING SIKAFLEX-241/-291 PER QSI 015
- 3) WELDING: PER DART QSI 004

DESIGN	PH	DART AEROSPACE USA, INC		
DRAWN	A/S	PORT HADLOCK, WA		
CHECKED		DRAWING NO.	REV. H	
MFG. APPR.		D3391	SHEET 6 OF 8	
APPROVED		TITLE	SCALE	
DE APPR.		412 FLOAT SKIDTUBE	NTS	
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72320

DESIGN	PH	DART AEROSPACE USA, INC		
DRAWN	AJS	PORT HADLOCK, WA		
CHECKED		DRAWING NO.	REV. H	
MFG. APPR.		D3391	SHEET 8 OF 8	
APPROVED		TITLE	SCALE	
DE APPR.		412 FLOAT SKIDTUBE	NTS	
DATE	08.08.20	COPYRIGHT © 2005 BY DART AEROSPACE USA, INC		
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DEO ATTACHED  
DETAIL T  
SCALE 4X  
ELEASED  
08-09-05 11:17

DRAWING NO. D3391	TITLE 412 FLOAT SKIDTUBE	REV. H	DART AEROSPACE USA, INC ENGINEERING ORDER	D.E.O. NO. D3391-H-1	SHEET NO. SHEET 1 OF 1	SCALE NTS
DRAWN <i>CP</i>	CHECKED <i>1</i>	MFG. APPR. <i>AA</i>	APPROVED <i>MJ</i>	DE APPR. <i>HP</i>		
DATE 09.09.23	DATE 09.09.24	DATE 09/09/25	DATE 09/09/30	DATE 09/09/30	DATE 09/09/30	

**PURPOSE:**

LPS-3 IS NO LONGER USED DURING ASSEMBLY OF D3391-041/043 SKIDTUBES.

**CHANGE:**

AMEND NOTE 2 OF D3391-041/043 SKIDTUBE ASSEMBLIES (ZN A6-1, A6-2) AS FOLLOWS:

2) ~~SPRAY INSIDE OF TUBE WITH A COAT OF LPS LABORATORIES "LPS-3" AFTER FINISH  
AND AFTER INSTALLATION OF INSERTS.~~ COAT ALL EXPOSED FASTENERS WITH  
LPS LABORATORIES "LPS PROCYON" AFTER FINAL ASSEMBLY, CLEAN EXCESS  
OFF POWDER COATING WITH MEK DEGREASER.

**RELEASED**  
2010-02-02

*HP*

*12320*